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Longitudinal polarizability and enhancement factor of a tapered optical gold nanoantenna

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Abstract

This work focuses on the mechanism of electric field enhancement near a tapered optical antenna and the calculation of a complex field enhancement factor as a function of tip material, its curvature radius and cone angle. In this paper, an analytical model of longitudinal polarizability, taking into account retardation and dynamic polarization effects, is developed for evaluating the field enhancement factor.

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